

Bull. Natn. Sci. Mus., Tokyo, Ser. A, 11(2), pp. 53–56, June 22, 1985

A New Species of *Spirocamallanus* (Nematoda, Camallanidae) from Rabbitfish in the Philippines

By

Masaaki MACHIDA

Department of Zoology, National Science Museum, Tokyo

and

Yasuhiko TAKI

Research Laboratory of Fisheries Resources,
Tokyo University of Fisheries, Tokyo

Abstract A new camallanid nematode, *Spirocamallanus philippinensis*, was isolated from the intestine of a rabbitfish, *Siganus guttatus*, in the Philippines. This species has large body length, 8 cephalic papillae, 8 longitudinal muscular stripes around the buccal capsule, a ledge anterior to the basal ring in the buccal capsule, spicules with a ratio of 1:1.4 to 1.6, 3 pre- and 5 postcloacal papillae, and a vulva situated 36 to 41 % of body length from the cephalic end.

A total of 191 nematodes, 78 males and 113 females, were obtained from the intestine of a rabbitfish, *Siganus guttatus*, which had been reared in a marine fish farm in the Philippines. The nematodes blocked nearly the whole intestinal passage by swarming and growing there. Such fish became lean and dark in color, did not swim in shoals and often swam near the surface of the water or bumped against the wall of the tank. Heavy infection of the parasite is alleged to be a cause of death in cultured fishes. The description of this nematode is given below.

The nematodes were fixed in 5% formalin and cleared in glycerine. The specimens are deposited in the collection of the National Science Museum, Tokyo (NSMT).

We are grateful to Mr. J. ARAKI for technical assistance.

Camallanidae

Genus *Spirocamallanus* OLSEN, 1952

Spirocamallanus philippinensis sp. nov.

(Figs. 1–5)

Host. *Siganus guttatus* (BLOCH).

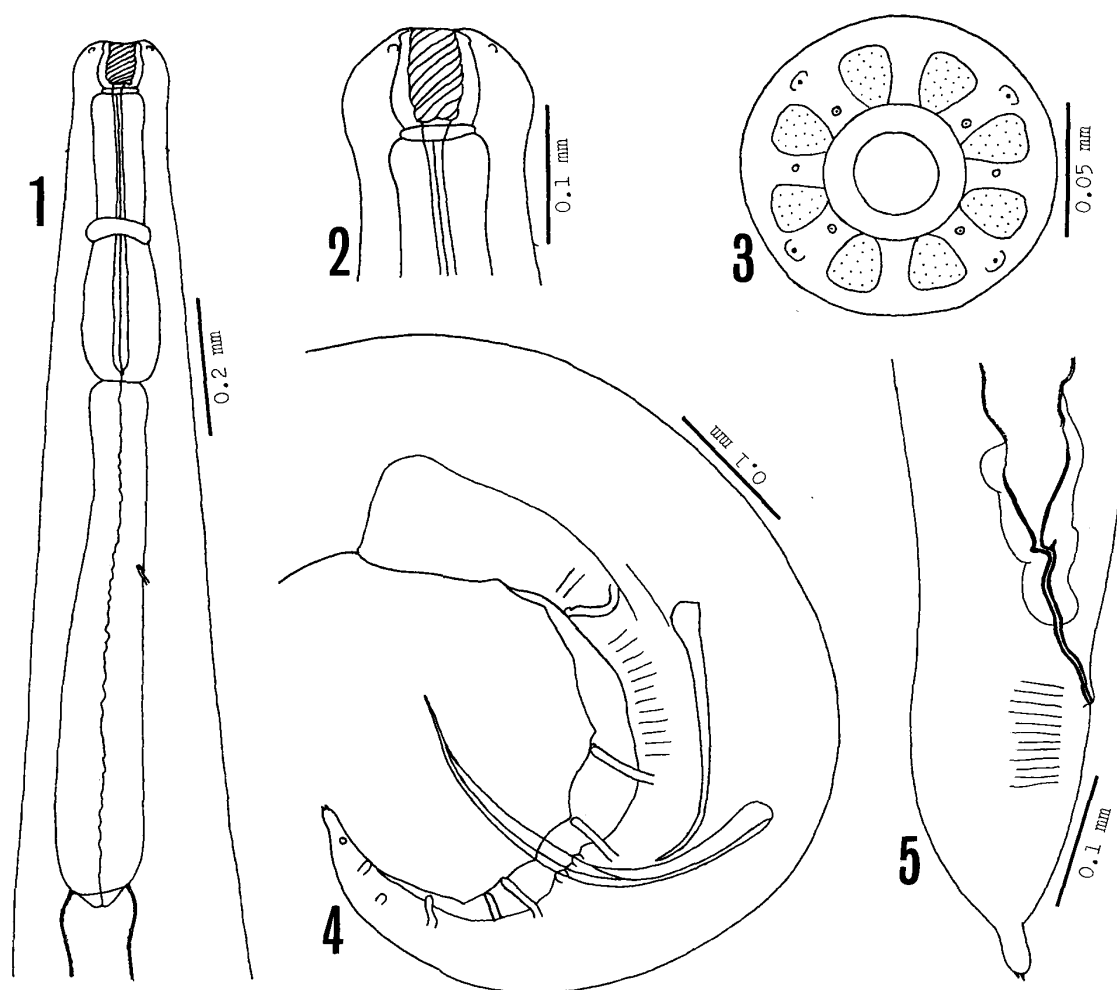
Site. Intestine.

Locality. Panay I., the Philippines.

Date. June 4, 1984.

Specimen No. NSMT-As 1802.

Description. Body reddish in color in life. Lips absent. Mouth rounded. Cephalic papillae in 2 concentric circles of 4 situated at an angle of 45 degrees from dorsal-ventral axis; of these, the 4 outer papillae much larger. Amphids lateral. Cuticle with fine transverse striations and longitudinal ridges. Buccal capsule barrel-shaped, with 10 to 12 spirals internally when counted diagonally and surrounded by 8 longitudinal muscular stripes; ledge anterior to basal ring. Minute cervical spines midway between cephalic end and nerve ring. Esophagus consisting of anterior muscular and posterior glandular portion, and ending in trilobate valves which project into intestinal lumen. Nerve ring midlevel of muscular esophagus. Excretory pore a little or some distance posterior to junction between muscular and glandular esophagus. Excretory system divided into 2 branches at slightly posterior to mid-



Figs. 1–5. *Spirocamallanus philippinensis* sp. nov. — 1. Anterior end of female, lateral view. 2. Cephalic region of female, lateral view. 3. En face of female. 4. Posterior end of male, lateral view. 5. Posterior end of female, lateral view.

level of glandular esophagus; each branch attached to lateral cord and tapering posteriorly. Tail with 2 small spine-like projections.

Male. Based on 12 specimens. Body 17.6–19.8 mm long by 0.21–0.30 mm wide at midpoint. Buccal capsule $62\text{--}71 \times 50\text{--}57\ \mu\text{m}$; basal ring $40\text{--}44\ \mu\text{m}$ in diameter. Esophagus 0.96–1.24 mm long, 5–7% of body length; muscular portion $0.36\text{--}0.44 \times 0.07\text{--}0.08\ \text{mm}$, comprising 35–40% of entire esophagus; glandular portion $0.59\text{--}0.80 \times 0.07\text{--}0.10\ \text{mm}$. Cervical spines, nerve ring and excretory pore 0.13–0.15 mm, 0.23–0.27 mm and 0.57–0.67 mm from cephalic end, respectively. Anterior end of testis in region of glandular esophagus. Spicules gradually tapering posteriorly, ending with sharp tips; left spicule 0.20–0.26 mm long; right spicule 0.30–0.35 mm long; spicule ratio 1:1.4–1.6. Gubernaculum absent. Caudal alae united ventrally 0.61–0.72 mm from caudal end, supported by 8 symmetrical pairs of papillae; 3 pairs of long precloacal papillae and 5 pairs of short postcloacal papillae. Two pairs of sessile adanal papillae-like structures surrounding a cloacal opening. Phasmids midway between posteriormost pair of papillae and caudal end. Tail 0.18–0.24 mm long.

Female. Based on 12 specimens. Body 32.7–40.1 mm long by 0.46–0.57 mm wide at vulvar region. Buccal capsule $82\text{--}101 \times 62\text{--}72\ \mu\text{m}$; basal ring $44\text{--}54\ \mu\text{m}$ in diameter. Esophagus 1.12–1.46 mm long, 3–4% of body length; muscular portion $0.41\text{--}0.56 \times 0.10\text{--}0.12\ \text{mm}$, comprising 35–43% of entire esophagus; glandular portion $0.65\text{--}0.95 \times 0.12\text{--}0.15\ \text{mm}$. Cervical spines, nerve ring and excretory pore 0.13–0.20 mm, 0.26–0.32 mm and 0.68–0.85 mm from cephalic end, respectively. Vulva situated anterior to midpoint, 12.1–15.8 mm or 36–41% of body length from cephalic end. Vagina vera extending posteriorly from vulva, 0.10–0.15 mm long by 0.07–0.09 mm wide. Anterior ovary usually extending some distance posterior to anterior end of intestine or sometimes to glandular esophagus. Rectum 0.21–0.28 mm long. Tail 0.20–0.27 mm long including finger-like digit. Phasmids inconspicuous. Larvae $412\text{--}443 \times 16\text{--}18\ \mu\text{m}$.

Discussion. The present new species resembles *S. macaensis* VICENTE et SANTOS, 1972, *S. cricotus* FUSCO et OVERSTREET, 1978 and *S. halitrophus* FUSCO et OVERSTREET, 1978 in length and width of body, size of buccal capsule, etc. However, *S. macaensis* differs from the present species by possessing larger muscular esophagus (0.53–0.58 mm long in the male and 0.69 mm long in the female), longer right spicule (0.61–0.62 mm long) with hooked end, 4 pairs of postcloacal papillae, and by lacking longitudinal muscular stripes around the buccal capsule. *S. cricotus* has a dorsoventrally elongated mouth with 12 cephalic papillae, longer right spicule (0.429–0.552 mm long), and lacks cervical papillae and muscular stripes around the buccal capsule. Further, *S. halitrophus* differs from the present species by having an elongated mouth with 12 cephalic papillae, 6 pairs of postcloacal papillae, and by lacking cervical papillae, muscular stripes around the buccal capsule and a ledge anterior to the basal ring in the buccal capsule. In possessing 8 longitudinal muscular stripes around the buccal capsule and 8 pairs of caudal papillae, the present new species is similar to *S. olseni*

CAMPANA-ROUGET et RAZARIELISSOA, 1965, but differences are observed in that *S. olseni* has smaller body length (9–15 mm long in the male and 12–20 mm long in the female), 4 cephalic papillae and a vulva situated a little behind the midpoint in larger specimens. Postcloacal papillae also differ slightly in arrangement between the two species.

References

- BASHIRULLAH, A. K. M., & E. H. WILLIAMS, 1980. Five new species of the genus *Spirocamallanus* OLSEN, 1952 (Camallanidae, Nematoda) from marine fishes. *J. Helminth.*, **54**: 247–252.
- CAMPANA-ROUGET, Y., & M. RAZARIELISSOA, 1965. *Spirocamallanus olseni* n. sp. (Nematoda, Camallanidae), parasite de poissons de mer de Nossi-Bé. *Ann. Parasit.*, **40**: 171–176.
- FUSCO, A. C., & R. M. OVERSTREET, 1978. *Spirocamallanus cricetus* sp. n. and *S. halitrophus* sp. n. (Nematoda: Camallanidea) from fishes in the northern Gulf of Mexico. *J. Parasit.*, **64**: 239–244.
- HOOPER, J. N. A., 1983. Parasites of estuarine and oceanic flathead fishes (Family Platycephalidae) from northern New South Wales. *Aust. J. Zool.*, Suppl. Ser. (90): 1–69.
- IVASHKIN, V. M., A. A. SOBOLEV & L. A. KHROMOVA, 1971. Camallanata of animals and man and diseases caused by them. Essentials of Nematodology, XXII. (English ed., Jerusalem, IPST, 1977. 381 pp.)
- VICENTE, J. J., & E. SANTOS, 1972. Sobre um novo nematódeo camallanídeo parasito de peixe marinho (Nematoda, Camallanoidea). *Atas Soc. Biol. Rio de J.*, **15**: 145–147.